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INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification 6 : A23D 7/00, A23L 1/19 — A1

(11) International Publication Number: WO 98/19553

(43) International Publication Date: 14 May 1998 (14.05.98)

(21) International Application Number: PCT/EP97/05921

(22) International Filing Date: 21 October 1997 (21.10.97)

(30) Priority Data:
96307975.1 4 November 1996 (04.11.96) EP
(34) Countries for which the regional or international application was filed: GB et al.

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(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG).

Published
With international search report.
Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.

(54) Title: STABLE COCONUT CREAM ALTERNATIVE

(57) Abstract

Sterilized, water-continuous fat containing emulsion comprising: 1-30 wt.%, preferably 1-20 % of a vegetable or animal fat; 0.1-5 wt.%, preferably 0.2-3 % of a protein; 0-2 wt.% of an emulsifier composition; 0-10 wt.% of a sweetener, in particular a carbohydrate; 0.01-2 wt.% of a flavour composition; 0-1500 ppm. of cations; 0-5 wt.% of a thickener composition; 0.01-5 wt.% of stabiliser in particulate form; which composition has a viscosity at 30 °C of 1-200 mPa.s when measured at 50s-1 and after a storage period in the range of 1-36 weeks at a temperature of 30 °C shows a creaming level in the range of 0-30 %. Such emulsions were found to be pourable and also to have a good storage stability, even for a period of up to 9 months at high temperatures.

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Stable Coconut cream alternative

Coconut cream, i.e. the emulsion obtained by extraction of comminuted coconut kernel (with or without addition of water), is a well-known product in tropical areas like Indonesia, Thailand, Philippines etc. So far, these creams were mainly hand-made from fresh mature coconuts. This technique, however, is time-consuming and inefficient while the product obtained has to be used immediately as microbial deterioration and rapid creaming (separation of the oil and water phases) will occur upon storage at ambient temperature due to the large oil droplet size. One of the key attributes of natural coconut cream is that upon heating, it exhibits aggregation of the protein component which is thought to facilitate flocculation of the oil droplets (resulting in an increase in the rate of their rise to the top of the sample). This then leads to completely separated oil and water layers, with little or no oil present in the lower layer. A similar appearance on heating is required from a sterilised coconut cream alternative.

In the past, attempts were made to prepare canned, pasteurized or sterilized coconut creams. Sterilization treatments applied were treatments at a temperature of about 120-125 ^{o}C for about 0.5 hour. Although such treatments improved the microbiological shelf life, within the specific time and temperature regimes applied in such treatments, there was a tendency of the cream to result in undesirable off flavours and said treatments are believed to accelerate the separation of the oil and water phases

(also known as creaming) of the emulsion making the products less appealing to the consumer.

In the International Application WO 94/15477, a coconut cream alternative is described, being a sterilized, water-continuous fat containing emulsion which comprises

1-30 wt.%, preferably 1-15 wt% of a vegetable fat;
0.1-5 wt.% of a protein compound;
0-2 wt.% of an emulsifier composition;
0-10 wt.% of a sweetener, in particular a carbohydrate;
0.01-5 wt.% of a thickener composition;
0.01-2 wt.% of a flavour composition;
0-1500 ppm. of a multivalent metal.

which composition, upon heating above 70°C, shows flocculation of at least the protein component.

Although the products obtainable from the teaching of that patent are of acceptable quality, it is observed that after prolonged storage periods the product often separates into two layers (creaming). This phenomena was in particular observed when storing this product at relatively high temperatures (eg. in excess of 30°C, for a period of typically > 16 weeks). These high ambient temperatures are often encountered in the tropical areas where this type of product is normally used.

Although this stability problem could be partially solved by increasing the amount of thickeners used to stabilise the emulsion, the viscosity of such a product is too high for it to be a free flowing, pourable homogeneous liquid.

Also, it could be solved by significantly reducing the fat droplet size. However, this has a negative effect on the ability of those droplets to flocculate and therefore on the appearance of the product after heating to typical cooking temperatures.

It is therefore an object of the present invention to provide a sterilized, water continuous emulsion that has a low viscosity, that is pourable and free flowing, that is ambient stable (in typical tropical climates) for a period of at least 6 months and preferably, for a period of at least 9 months, and so does not show a significant amount of separation after a shelf life of 6-9 months. Any and all separation which may occur must be totally reversible upon gentle agitation. Said product shows the required performance upon use, i.e. shows flocculation of the protein and fat components. The techniques used for flocculation measurement are described in international patent application WO 94/15477.

The extent of creaming can be measured by the following Stability Test:
Store a sterilized sample in an aseptic pack in an upright position on a level surface at desired storage temperature X at a specified sampling time Z. Then, carefully remove sample from incubator and transfer with minimum product disturbance to a level surface within a freezer (-18°C) for 48 hours. After a time sufficient to fully immobilize the product by freezing (dependant on product size) the sample is removed from -18°C storage and carefully cut open and the packaging material is removed. For a 250 ml rectangular

pack (dimensions: 6.2cm x 4.0cm x 10.5cm), a freezing time of 48 hours is normally sufficient.

Then measure the height of the visible serum-cream boundary layer and express as a % of total product height (referred to in this document as the % Creaming) by use of a ruler or other similar measuring device as soon as possible to minimize a temperature increase (possible melting) of the frozen sample. Some judgement on average boundary height across pack may be necessary.

$$\text{creaming \%} = \frac{\text{height lower layer}}{\text{total height sample}} \times 100;$$

Express as % Creaming at X Temperature after Z time.

It has now been found that this can be achieved by a sterilized, water-continuous fat containing emulsion which shows flocculation of at least the protein component upon heating of the product, the emulsion comprising

1-30 wt.%, preferably 1-20% of a vegetable or animal fat;

0.1-5 wt.%, preferably 0.2-3% of a protein;

0-2 wt.% of an emulsifier composition;

0-10 wt.% of a sweetener, in particular a carbohydrate;

0.01-2 wt.% of a flavour composition;

0-1500 ppm. of cations;

0-5 wt.% of a thickener composition;

0.01-5 wt.% of stabiliser in particulate form;

and has a viscosity at 30°C of 1-200 mPa.s when measured at $50s^{-1}$ and after a storage period in the range of 1-36 weeks at a temperature of 30°C shows a creaming level in a range of 0-30% (as measured in the technique as outlined above).

In an alternative embodiment the invention relates to a sterilized, water-continuous fat containing emulsion which shows flocculation of at least the protein component upon heating of the product, the emulsion comprising

1-30 wt.%, preferably 1-20% of a vegetable or animal fat;
0.1-5 wt.%, preferably 0.2-3% of a protein;
0-2 wt.% of an emulsifier composition;
0-10 wt.% of a sweetener, in particular a carbohydrate;
0.01-2 wt.% of a flavour composition;
0-1500 ppm. of cations;
0.01-5 wt.% of a thickener composition;
0.01-5 wt.% of stabiliser in particulate form;

and has a viscosity at 30°C of 1-200 mPa.s when measured at $50s^{-1}$ and after a storage period in the range of 1-36 weeks at a temperature of 30°C shows a creaming level in a range of 0-30% (as measured in the technique as outlined above).

Without wishing to be bound by any theory, it is believed that the mechanism for enhanced stabilisation of these low viscosity emulsions is obtained via high phase volume of particulates which prevents upward movement of the oil droplets.

These particulates may be added as an ingredient prior to sterilisation provided they remain particulate during and

after the sterilisation process (e.g. temperatures up to 150°C for up to 30 seconds). An alternative method is to produce the particles during the preparation process of the product of the present invention. This can be done before or after sterilisation, for example by cooling a gelling biopolymer to below its gelling temperature in the presence of an intense shear field, or alternatively for example by the chemical setting of a gelling biopolymer in the presence of such an intense shear field. Particles formed prior to sterilisation must be capable of surviving the sterilisation process intact.

It is preferred that the emulsion shows a creaming level as low as possible, but at most in the range of 0-30% (as measured by technique above), after a storage period in the range of 15-36 weeks, and preferably after a storage period of 30-36 weeks. The creaming level is preferably in the range of 0-20%, further preferred 0-10%, more preferred in the range of 0-5%, and, most preferred almost or completely 0%.

The stabiliser in particulate form can be made of any food grade gelling or stabilizing agent. The stabiliser in particulate form should remain as particulates on storage under the required temperature regimes i.e. their melting point is preferably at least 5°C greater and more preferably at least 10°C than the required storage temperature.

Examples of suitable material for use as particles are microcrystalline cellulose (MCC) such as Avicel, derivatives of any thereof, microparticulated gels formed

on cooling in a shear field (sheared biopolymers both thermally and chemically set), such as agar, kappa-carrageenan, iota-carrageenan, pectin, gellan, alginate, konjac mannan, curdlan, chitin, furcelleran, carboxy methyl cellulose (CMC), amylose, xanthan + locust bean gum (LBG), xanthan + konjac mannan, kappa-carrageenan + LBG, kappa-carrageenan + konjac mannan and the like, or mixtures thereof.

As mentioned above, the stabiliser in particulate form may be obtained in the product according to the invention in one of the following ways:

1. by adding the stabiliser in particulate form to a premix of all ingredients, prior to sterilisation, provided that the particles remain particulate during sterilisation, or by adding the stabiliser in particulate form after sterilisation.

2. by adding stabiliser in ungelled form whereby the stabiliser is not yet in particulate form. In this case the ungelled material can be added before or after sterilisation to the premix comprising all ingredients. Particles are for example formed by cooling the mixture comprising all ingredients, in the presence of an intense, shear field, or alternatively for example by the chemical setting of a gelling biopolymer in the presence of such an intense shear field. Particles formed prior to sterilisation must be capable of surviving the sterilisation process intact.

It was found that the presence of a thickener is not required to obtain the desired viscosity and stability of the product.

However, if no thickener is used, the amount of certain biopolymers needed to obtain the required viscosity is sometimes observed to be undesirable high. For example, there are upper levels for alginate coated MCC in some countries due to food ingredient law. In such a case some starch may be added to obtain the required viscosity at a lower biopolymer concentration.

In a preferred embodiment according to the invention, sheared agar is used as particulate stabiliser, and no thickener is present.

It is considered to be essential, that at least 0.01-5% (on total end product weight basis) of particulate stabiliser, is present in the product according to the invention. When the stabiliser is not in particulate form it is not possible to obtain both the low viscosity in combination with the desired stability. The particulates of the present invention can have any form, i.e. they can be spherical, irregularly shaped, they can have the form of spheres, rods, cones, and the like. The particle size to be used must be below a critical size for oral and visual perception. Typically these particles preferably should have a mean equivalent diameter, (number weighted mean diameter), not exceeding 100 micrometer, more preferably not exceeding 50 microns and even more preferably not exceeding 20 microns. (Such as described in e.g., EP 0 355 908).

The pH of our sterilized coconut cream alternatives is in general about neutral, preferably pH 6.0 - 7.8, more preferred pH 6.5-7.5. In order to induce the desired

flocculation of the proteins, the presence of some, preferably 10-1500 ppm, in particular 50-1000 ppm of a multivalent cation, in particular calcium, was advantageous. The amount of cation, e.g. Ca^{2+} , that is required for flocculation upon heating will depend upon the pH of the emulsion. However in the pH range of 6.0- 7.8 the amounts given above will suffice.

The nature of the fat component is not very critical. In fact, any natural or synthetic fat component derived from vegetable or animal sources can be applied. The fats are suitably selected from hardened fats, high in SAFA (saturated fatty acids) or unhardened vegetable fats, high in PUFA (poly unsaturated fatty acids), but also fractions thereof or mixtures of these fats can be applied. In particular, suitable fats are selected from the group of coconut oil, hardened coconut oil, fractions of hardened coconut oil, palm kernel fat, hardened palm kernel fat, fractions of hardened palm kernel fat, palm oil, hardened palm oil, fractions of palm oil or hardened palm oil, sabayon oil, sunflower oil, safflower oil, maize oil, and rapeseed oil. Further also animal fat, such as fish oil, or butter or butterfat can be applied. Also mixtures of vegetable and non-vegetable fats can be applied.

For health reasons, the use of liquid oils high in PUFA content, either *per* se or admixed with hard fats, is preferred. The use of liquid vegetable oils is in particular preferred. In this preferred embodiment it is further preferred to use stabiliser in particulate form in an amount of 1-5 wt%, more preferably 2-5 wt%, more preferred 3-5 wt%, most preferably 0.01-3 wt%.

The addition of a non-proteinaceous emulsifier is not essential for compositions of this particular invention. However, examples of suitable emulsifiers other than protein which may be used are monoglycerides, lactylates, polyglycerol esters, lecithin, and diacetyl tartaric esters.

Sweeteners, although not absolutely necessary, are normally present in order to achieve a sweet taste and often also because of their water-binding abilities. Examples of suitable sweeteners are found in the group of carbohydrates, such as sucrose, glucose, fructose, syrups of glucose or fructose, maltodextrins or mixtures thereof, while also high-intensity sweeteners, e.g. sorbitol, can be present. In particular, a mixture of sucrose and sorbitol syrup having a weight ratio of 3:1 yields very good results.

After processing an emulsion is obtained having a viscosity at 30°C (= η_{30}) in the range of 1-200 mPa.s, more preferably 1-100 mPa.s, and particularly in the range of 1-80 mPa.s. The viscosity is suitable measured using a Haake Rotovisco RV 20-M5 measuring system with a MV1 sensor at 30°C and at a shear rate of $50s^{-1}$ (0 - 50s-1 over 5 mins) followed by 15 minutes at a constant shear rate of $50s^{-1}$ at 30°C. The reading is taken after 10 mins at constant 50s-1 shear rate.

The emulsions of the present invention exhibit flocculation on heating for 50 min. at 85°C. The extent of flocculation can be measured by the technique described in international

patent application WO 94/15477. Emulsions of the present invention exhibit at least 50%, preferably at least 75% flocculation when held under the conditions mentioned above.

Coconut creams are conventionally applied in the preparation of traditional meals, e.g. as a cooking additive. Therefore, food products at least partly consisting of the sterilized, water-continuous fat containing emulsions according to the invention are also part of this invention. For this purpose spices are often incorporated in the creams according to the invention.

Another part of the invention is the process of preparing the emulsions set forth above. Therefore, in another embodiment the invention relates to a process for the preparation of water-continuous fat emulsions containing particulates for stabilisation wherein :

- a premix is made of all components at 50-80°C, but optionally excluding some or all of the multivalent cation components and optionally excluding some or all of the stabilizer material;
- the premix is optionally heated to a temperature above 80°C;
- the heated premix is subjected to a direct or indirect UHT treatment at 130-150°C for 1-30 seconds;
- the sterilized mixture is cooled to 50-75°C, preferably 60-75°C;
- the cooled, sterilized mixture is homogenized at a pressure of 10-250 bar, preferably 25-250 bar;
- the homogenized mixture is cooled to 5 - 35°C

- the cooled mixture is packed aseptically, preferably at 5-35°C.

This process of the invention allows the addition of the stabilizer or ingredients from which the stabilizer is to be formed in a manner dependent on the choice of stabilizer to be present in the resulting emulsion.

In one embodiment the stabilizer is added in particulate form. Where the stabilizer material is not sensitive to temperatures occuring at the sterilization process, for example, as is the case for particles of chemically set gels, the stabilizer particulates can be added at any moment of the process described above. Preferably the particles are added prior or during the sterilization process for microbiological safety reasons.

In case the stabilizer is added in particulate form, and the stabilizer comprises heat sensitive material, stabilizer should be added after the sterilization step.

Altenatively, in case the stabilizer material is molten due to a heat step in the process, an intense shear field is to be applied while cooling to below the gel-forming temperature.

In another embodiment the stabilizer particulates can be formed in situ. In this embodiment, the particulates are formed by a thermal and/or chemical set gelation process, during the preparation process of the mixture, or, in case a mixture of thermally and chemically setting gelling agents if formed, by both processes, and an intense shear field is applied during or after the gel formation.

In case a stabilizer is used which is not resistant to the temperatures normally applied in a sterilisation process,

an intense shear field is to be applied while cooling the gelling biopolymer to below its gelling temperature preferably while cooling to at least 5C below its gelling temperature.

Where cations are needed for in-situ gelation of the material from which the stabilizer is to be formed prior to sterilisation, the amount of cation needed for said gelation can be present.

The addition of a sterilized cation solution for flocculation can occur after sterilization and cooling to below 40°C.

Addition of this multivalent cation solution can occur in any of the following steps

1) just before homogenization;
2) just after homogenization;
3) after the final cooling step to 5-35°C but before packaging;
4) prior to the use of the product through the addition of hardened water.

In a particular embodiment, in the process for making an emulsion according to the invention as mentioned above, particles are formed post-sterilisation by passing the homogenised emulsion through a device capable of the simultaneous application of shearing and cooling (such as a scraped surface heat exchanger - SSHE), such that the temperature of the emulsion is reduced to below the temperature at which gelation is complete, and that the shear imposed on the system is sufficient to produce a particle size in the range specified above. If gelation is

calcium mediated, then the calcium must be metered into the shearing device;

- the homogenized mixture is cooled to 5 - 35°C (if this is not already achieved in the previous step)
- the sterilised cation solution for flocculation is added; and the cooled mixture is packed aseptically, preferably at 5-35°C.

Alternatively to this particular embodiment, particles can also be produced pre-sterilisation, provided they are capable of surviving the sterilisation process, by using the process described above, ie. using the SSHE.

In case a chemically setting gelling agent such as alginate, is used for the in situ formation of stabilizer particles a certain amount of cations is often required to initiate gel formation. The amount of cat-ions is believed to be dependant upon the biopolymer type and also upon the desired final gel structure. For example, if pectin is used as source of particulate stabilising material Ca^{2+} is suitably used as the ion to initiate gelation. If gellan is used, Na^{+}, K^{+} or Ca^{2+} , or combinations thereof can be used to initiate gelation in the premix.

A preferred embodiment of the present invention is the use of materials of which the gelation is not calcium dependant.

It should be noted that the flavour does not need to be part of the premix. It can be added at any suitable stage in the production. It is even preferred to add it after sterilization.

The invention is further illustrated by the following examples.

Example I

Products were made on a direct steam infusion plant. The ingredients were premixed at 50-55°C, preheated to 90°C, subjected to UHT treatment of 146°C for 6 seconds, cooled to 75°C, homogenised at a pressure of 25 bar before being cooled to 25°C where addition of sterilised post-addition ingredients is volumetrically dosed prior to packaging. Creams with the following composition were prepared:

Table IA

ingredient	%
Coconut Oil	15.0
Sodium Caseinate	1.0
whey protein concentrate	0.36%
Sucrose syrup	3.71
Sorbitol Syrup	0.81
modified tapioca starch	1.5
alginate coated MCC	0.5
Water and flavour	balance
$CaCl_2.6H_2O$ *(Post-added)*	0.06
KCl *(Post-added)*	0.12

The stabiliser in particulate form (the MCC) was added prior to sterilisation and remained intact during and after the sterilisation process.

A number of tetrapacks were filled with the product, and stored at 30°C. After a given period, a pack was opened and the viscosity was measured according to the method described above. Simultaneously, a 250ml pack was stored in a freezer at -18°C for 48 hours, and the packaging material was removed. Creaming was measured, (as outlined previously), and the % creaming was calculated. This procedure was repeated at regular intervals as indicated in the table.

Table I B Storage stability at 30°C

time (weeks)	viscosity (mPa.s)	creaming (%)
0	71	0
3	63	0
6	52	1
11	45	3
14	35	6
24	30.	8

Example II

Example I was repeated with the same process and same ingredients in same amounts, with the exception that instead of 1.5% tapioca starch, 2% tapioca starch was used and the amount of water was reduced in accordance with that. The storage stability was determined and was as listed in Table II.

Table II Storage stability at 30°C

time (weeks)	viscosity (mPa.s)	creaming (%)
0	161	0
5	165	0
10	157	0
15	146	0
18	142	0
23	133	0
27	126	0
32	121	0
36	127	0

Example III (comparison)

Example I was repeated, with the same process and same ingredients in same amounts, with the exception that no stabiliser in particulate form was used, and the amount of tapioca starch was further increased to 2.4%. The ingredients list is provided in Table III A.

Table III A

ingredient	%
Coconut Oil	15.0
Sodium Caseinate	1.0
whey protein concentrate	0.36%
Sucrose syrup	3.71
Sorbitol Syrup	0.81
modified tapioca starch	2.4
flavour	0.02
$CaCl_2.6H_2O$ *(Post-added)*	0.06
KCl *(Post-added)*	0.12
water	balance

A number of tetrapacks were filled with the product, and stored at 30°C. After a given period, a pack was opened and the viscosity was measured according to the method described above. Simultaneously, a 250ml pack was stored in a freezer at -18°C for 48 hours, and the packaging material was removed. Creaming was measured (as outlined previously) and the % creaming was calculated. This procedure was repeated at regular intervals as indicated in the table.

Table IIIB Storage stability at 30°C

time (weeks)	viscosity (mPa.s)	creaming (%)
0	75	0
●	95	30
10	100	35
18	95	40
24	100	45
27	103	48
32	93	47

Example IV

Example I was repeated, with the same process and same ingredients in same amounts, with the exception that as stabiliser in particulate form sheared agar was used in an amount of 1 wt% and that no thickener was added.

The ingredients list is provided in table IV A.

Table IVA ingredients

ingredient	%
Coconut Oil	15.0
Sodium Caseinate	1.0
whey protein concentrate	0.36%
Sucrose syrup	2.41
Sorbitol Syrup	0.81
sheared agar	1.0
$CaCl_2.6H_2O$ *(Post-added)*	0.06
KCl *(Post-added)*	0.12
water	balance

The resulting cream had a viscosity of 128 mPa.s and the stability was good.

Claims

1. Sterilized, water-continuous fat containing emulsion which shows flocculation of at least the protein component upon heating of the product, the emulsion comprising

1-30 wt.%, preferably 1-20% of a vegetable or animal fat;

0.1-5 wt%, preferably 0.2-3% of a protein;

0-2 wt.% of an emulsifier composition;

0-10 wt.% of a sweetener, in particular a carbohydrate;

0.01-2 wt.% of a flavour composition;

0-1500 ppm. of cations;

0 -5 wt.% of a thickener composition;

0.01-5 wt% of stabiliser in particulate form;

and has a viscosity at 30°C of 1-200 mPa.s when measured at $50s^{-1}$ and after a storage period in the range of 1-36 weeks at a temperature of 30°C shows a creaming level in a range of 0-30%.

2. Sterilized emulsion according to claim 1, wherein the amount of thickener present is 0.01-5 wt%.

3. Sterilized emulsion according to claims 1-2, wherein the emulsion has a creaming level in the range of 0-30% after a storage period in the range of 15-36 weeks.

4. Sterilized emulsion according to claim 3, wherein the emulsion has a creaming level in the range of 0-20% after a storage period in the range of 15-36 weeks.

5. Sterilized emulsion according to any one of claims 1-4, wherein the storage period is in the range of 30-36 weeks.

6. Sterilized emulsion according to any one of claims 1-5, wherein the emulsion has a creaming level in the range of 0-10%, and is preferably in the range of 0-5%.

7. Sterilized emulsion according to any one of claims 1-6, wherein the emulsion comprises stabiliser in particulate form selected from the group consisting of:
microcrystalline cellulose (MCC) such as Avicel, derivatives of any thereof, microparticulated gels formed on cooling in a shear field (sheared biopolymers both thermally and chemically set), such as agar, kappa-carrageenan, iota-carrageenan, pectin, gellan, alginate, Konjac Mannan, curdlan, chitin, furcelleran, carboxy methyl cellulose (CMC), amylose, xanthan and locust bean gum, xanthan and Konjac Mannan, kappa-carrageenan and locust bean gum, kappa-carrageenan and Konjac Mannan and the like, or mixtures thereof.

8. Sterilized emulsion according to any one of claims 1-7, wherein the emulsion comprises 0.01-5 wt% of particles of microcrystalline cellulose, carboxy methyl cellulose or mixtures thereof.

9. Sterilized emulsion according to any one of the preceding claims, wherein the emulsion comprises particles where typically these particles have a mean equivalent diameter, (number weighted mean diameter), not exceeding 100 micrometer.

10. Sterilized emulsion according to claim 9, wherein these particles have a mean equivalent diameter not exceeding 50 micrometer.

11. Sterilized emulsion according to claim 10, wherein these particles have a mean equivalent diameter not exceeding 20 micrometer.

INTERNATIONAL SEARCH REPORT

Int. ional Application No
PCT/EP 97/05921

A. CLASSIFICATION OF SUBJECT MATTER
IPC 6 A23D7/00 A23L1/19

According to International Patent Classification(IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
IPC 6 A23D A23L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

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Y	EP 0 355 908 A (UNILEVER NV ;UNILEVER PLC (GB)) 28 February 1990 cited in the application see page 3, line 19 - page 4, line 13 see page 5, line 30 - line 56 see examples 1-9.14.15 see claims 1-10 ---	1-11
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[X] Further documents are listed in the continuation of box C.

[X] Patent family members are listed in annex.

* Special categories of cited documents :

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"&" document member of the same patent family

Date of the actual completion of the international search	Date of mailing of the international search report
6 April 1998	15/04/1998

Name and mailing address of the ISA	Authorized officer
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INTERNATIONAL SEARCH REPORT

Inte. .ional Application No
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C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

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A	EP 0 558 113 A (UNILEVER NV ;UNILEVER PLC (GB)) 1 September 1993 see claims 1-4,6,8-10	1,2.7.9
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